County Packet Network System Description

Prepared for:

County Packet Committee

Santa Clara County RACES

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1 Introduction

1.1 Introduction

Packet has been used throughout Santa Clara County (CA) for many years. It is also considered essential to the County Emergency Managers because of its fail-safe nature and independence of the existing commercial infrastructure in the event of a disaster.

While initially intended to pass California RIMS (Regional Information Management System) reports on disaster and activation status, packet has demonstrated its usefulness for passing a variety of forms- and list-based traffic that would be impractical on voice channels. County RACES has built on this premise, and adopted and deployed several tools to support effective and efficient information exchanges between City and County OES organizations. Outpost and PacForms are 2 such tools that have been rolled out County-wide. These actions have improved overall user efficiencies and have resulted in rekindling interest in packet as a viable communications medium.

However, this new message growth also uncovered deficiencies with the current infrastructure and its inability to handle the required traffic volume. A proposal was made to address the following situation:

- The county operates a packet environment consisting of a single 2 channel (2m and 220) BBS system with supporting digipeaters for over 20 participating stations.
- The current BBS software is a single modified AA4RE BBS that only runs on 80386 hardware and DOS. The last system failure took several weeks to resolve.
- There are no plans for future development or enhancement of the AA4RE platform by the application developer.
- Santa Clara County (SCC) RACES is concerned with the system's ability to handle an activation-level message volume.
- Packet policies and procedures have been defined to address these concerns that inherently reduce the effectiveness of packet messaging.
- There is no formal back-up BBS system in place in the event of a county BBS system failure.

A proposal to upgrade the County's Packet Infrastructure was made to address these problems as well as handle the anticipated growth in digital message traffic as both County and Cities look to exploit packet messaging. This new packet environment would consist of a series of networked JNOS BBSs designed to support the County's digital messaging needs.

1.2 Terms and Abbreviations

BBS	Bulletin Board System
CPC	County Packet Committee. This is the working group responsible for all things packet within Santa Clara County. This group operates under the charter from the District Emergency Coordinator/County Chief Radio Officer.
CPS	County Packet System; the proposed solution to address the amateur radio packet needs of Santa Clara County
KISS	Keep it Simple. Protocol implemented in the TNC that essentially causes the TNC to act as a modem with no protocol applied
MAC	Mutual Aid Communicator, volunteers who are available from the various city RACES staff to support County-wide mutual aid requests.

Message Server or Mailbox Server (NOS mailer)	The feature within JNOS that lets you create, store, and receive mail.
NCPA	Northern California Packet Association
NOS	Network Operating System, the basic TCP/IP software package. This is an open software package with variations being developed over the years (i.e.: JNOS, TNOS, SNOS, etc).
SCC	Santa Clara County
SMTP	Simple Mail Transport Protocol; an Internet standard for electronic mail (e-mail) transmission across Internet Protocol (IP) networks, such as JNOS.
TNC	Terminal Node Controller, interface between the PC and radio

Table 1 –Terms and Abbreviations

2 Requirements

2.1 In General

The packet message network environment has to meet several requirements to be viable for the County.

1. Common hardware. The computer platform should be Intel-based to ensure some element of supportability and commonality with the bulk of the processing platforms available at the County and on the market.
2. Contemporary Operating System. The O/S needs to be Windows 98, 2000, or XP. Windows NT is excluded because of the inherent administrative overhead.
3. Terminal Node Controllers (TNC). TNCs must be able to support KISS mode and up to 9600 baud data transfer rates.
4. Radios. Radios must be able to support the data transfer rates of the TNC.
5. Existing equipment leverage. Most cities have made investments in radios for their existing packet. User access and LAN channels must be picked to accommodate the current installed base of packet radios.
6. Number of Users. The BBS environment must support up to 20 known agencies distributed throughout the County.
7. Ad-hoc users must be supported as Santa Clara County further promotes and rolls out packet radio use through the MAC program.
8. Support tactical calls. This is an equivalent feature to what we do with voice nets; all assigned users have a tactical call sign that can be passed from user to user regardless of the owned FCC call sign.
9. Supportability. The packet mail server application should be stable, documented, and has a known development owner.
10. The packet mail server application should be widely in production.
11. Message volume. The environment must handle the necessary traffic volume in a timely manner.
12. Expandability. The system is expandable and adaptable as the needs of the county change.
13. The system environment is sufficient to allow for communications coverage and access redundancy.
14. Compliance. The County implementation complies with NCPA guidelines and policies.
15. Interoperability. The environment must work with Outpost and PacForms.

2.2 Assumptions

16. Message forwarding. Messages originating on a given Mail Sever are assumed to be addressed to either other addressees hosted on that server or addressees located on interconnected mail servers within the County's packet message network.
17. others?

2.3 Participating organizations

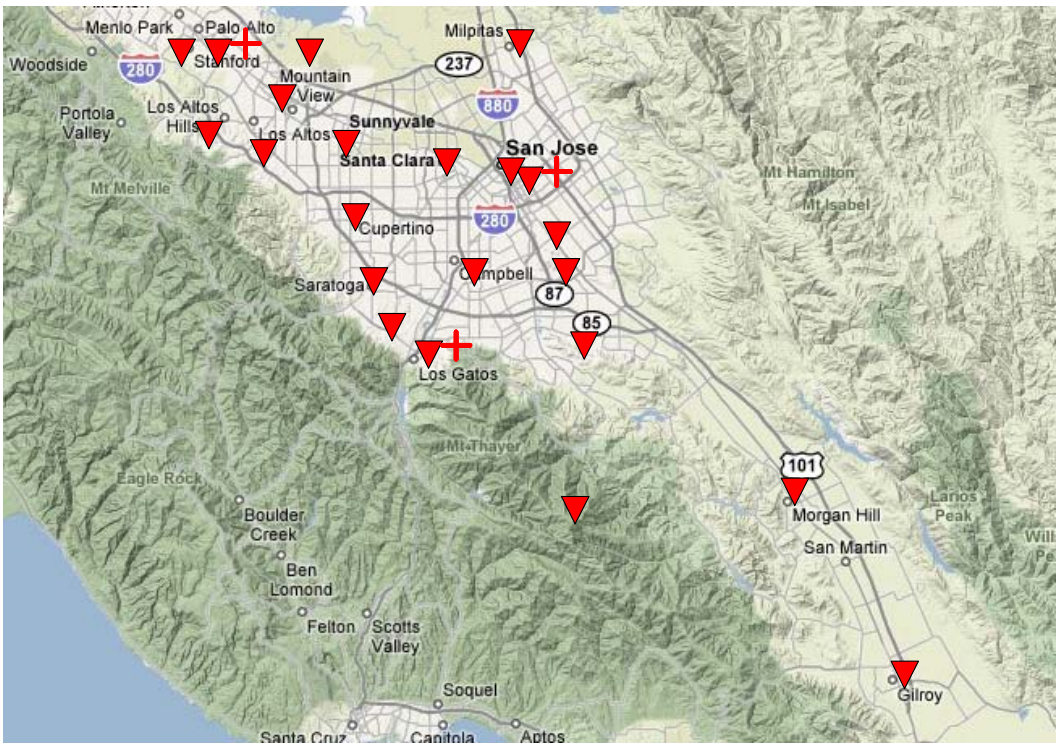
The following municipalities and served agencies require packet access.

Jurisdiction	TAC CALL	Jurisdiction	TAC CALL
1. Campbell, City of	CBLEOC	14. NASA – Ames	NAMEOC
2. County Comm Center	COCOMM	15. Palo Alto, City of	PAFEOC
3. Cupertino, City of	CUPEOC	16. Palo Alto Red Cross	PAFARC
4. Gilroy, City of	GILEOC	17. San Jose, City of	SJCEOC
5. Loma Prieta Region	LPREOC	18. San Jose Red Cross	SJCARC
6. Los Altos, City of	LOSEOC	19. San Jose Water Co	SJWEOC
7. Los Altos Hills, Town of	LAHEOC	20. Santa Clara, City of	SNCEOC
8. Los Gatos, Town of	LGTEOC	21. Santa Clara County	XSCEOC
9. Los Gatos Red Cross	LGREDC	22. SC Valley Water District	VWDEOC
10. Milpitas, City of	MLPEOC	23. Santa Cruz County	XCZEOC
11. Monte Sereno, City of	MSOEOC	24. Saratoga, City of	SAREOC
12. Morgan Hill, City of	MRGEOC	25. Stanford University	STUEOC
13. Mountain View, City of	MTVEOC	26. Sunnyvale, City of	SNYEOC

Table 2 –Participating Originations

Additionally, there is another independent County Hospital packet network that supports the 14 hospitals located throughout the county.

The following are the rough physical locations of current packet address holders (excluding Santa Cruz County):



3 System Overview

3.1 In General

The enhanced County Packet System (CPS) is described as follows:

1. JNOS is the Message Server application of choice. There are specific configuration settings that must be established for each JNOS instance and shared among all CPS mail servers.
2. SCC is divided into 4 packet regions, each with a dedicated JNOS Message Server serving the cities within that region (NOTE: If additional regions are defined, then the user assignments would be rebalanced across the county).
3. Each JNOS Message Server is hosted by a named city and supported by either County RACES or the host City's local ARES/RACES organization.
4. Participating cities and served agencies are assigned a primary JNOS Message Server for their main packet access.
5. JNOS Message Servers are configured to support legacy radio equipment. For instance, cities with existing 220 MHz radio equipment will be able to access the CPS with their existing equipment. However, the frequency may change depending on the region.
6. Users access the JNOS Message Servers on various 2 meter and 220 MHz frequencies using standard AX.25 packet with existing equipment at 1200 baud. See the JNOS Message Server configuration for specific frequency assignments.
7. City and Served Agencies will use their existing Tactical Calls as supported by Outpost's tactical call feature.
8. Messages are transferred between JNOS Message Servers using a TCP/IP 9600 baud link.
9. JNOS Message Servers will use SMTP (Simple Mail Transport Protocol) for forwarding messages by either leaving them local for local users or forwarding them to a different JNOS Message Server for remote users.
10. Distribution Lists will be defined at the JNOS Message Server level.

3.2 City/Agency Specifics

The following information is provided for all participating City/Agencies, and includes the following:

- **Tactical Call** is the assigned Tactical Call that this city/agency uses for all packet messaging.
- **Status** refers to the city/agency's packet activity. Active means the city/agency is confirmed as an active packet user, has participated in County RACES Drills, and has equipment and resources to support packet.
- **Packet Access** refers to the bands on which the city/agency can access the SCC's current packet BBS.

Jurisdiction	Tactical Call	Status	Packet Access
Campbell, City of	CBLEOC	Active	220, 440
County Communications Center	COCOMM		
Cupertino, City of	CUPEOC	Active	220
Gilroy, City of	GILEOC	Active	2m
Loma Prieta	LPREOC		2m
Los Altos, City of	LOSEOC	Active	220
Los Altos Hills, Town of	LAHEOC	Active	2m, 220, 440
Los Gatos, Town of	LGTEOC	Active	
Los Gatos Red Cross	LGREDC		
Milpitas, City of	MLPEOC	Active	
Monte Sereno, City of	MSOEOC		
Morgan Hill, City of	MRGEOC	Active	2m
Mountain View, City of	MTVEOC	Active	220
NASA – Ames	NAMEOC	Active	2m, 220
Palo Alto, City of	PAFEOC	Active	220
Palo Alto Red Cross	PAFARC		
San Jose, City of	SJCEOC	Active	220
San Jose Red Cross	SJCARC	Active	
San Jose Water Company	SJWEOC		
Santa Clara, City of	SNCEOC	Active	220
Santa Clara County	XSCEOC	Active	220
Santa Clara Valley Water Dist	VWDEOC		
Santa Cruz County	XCZEOC		
Saratoga, City of	SAREOC	Active	
Stanford University	STUEOC		220
Sunnyvale, City of	SNYEOC	Active	2m

Table 3 – Packet Activity

Additionally,

- **MAC Tactical Calls** will be predefined to support MAC packet user deployments.

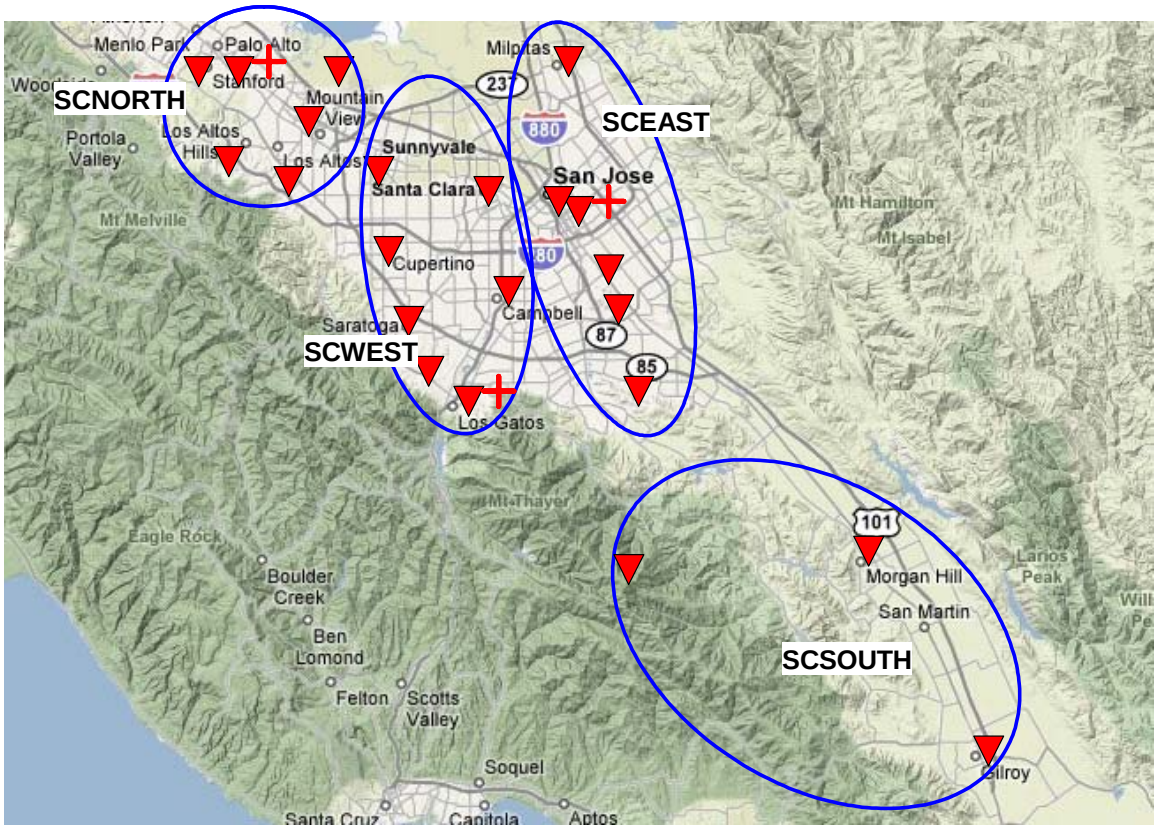
3.3 City/Agency JNOS Message Server Assignments

The following are the City/Message Servers assignments for the participating Cities and Agencies. Note that:

- Cities/Agencies listed in **GREY** are pending confirmation as to their level of packet activity (1/10/09)
- Transmission testing by all participating Cities/Agencies will occur quarterly to confirm the assignment is the best communications path for the entity.

Node Name	SCNORTH	SCSOUTH	SCEAST	SCWEST
Host City	Mountain View	Morgan Hill	San Jose	Cupertino
Assigned Cities	1. Palo Alto 2. Palo Alto Red Cross 3. Los Altos 4. Los Altos Hills 5. Mountain View 6. NASA AMES. 7. Stanford University	1. Gilroy 2. Loma Prieta 3. Morgan Hill	1. Milpitas 2. San Jose 3. San Jose Red Cross 4. County EOC 5. County Comm 6. San Jose Water Co 7. Santa Clara Valley Water District	1. Sunnyvale 2. Santa Clara 3. Cupertino 4. Campbell 5. Monte Sereno 6. Saratoga 7. Los Gatos 8. Los Gatos Red Cross

Table 4 – Host Cities and City/Agency Assignments



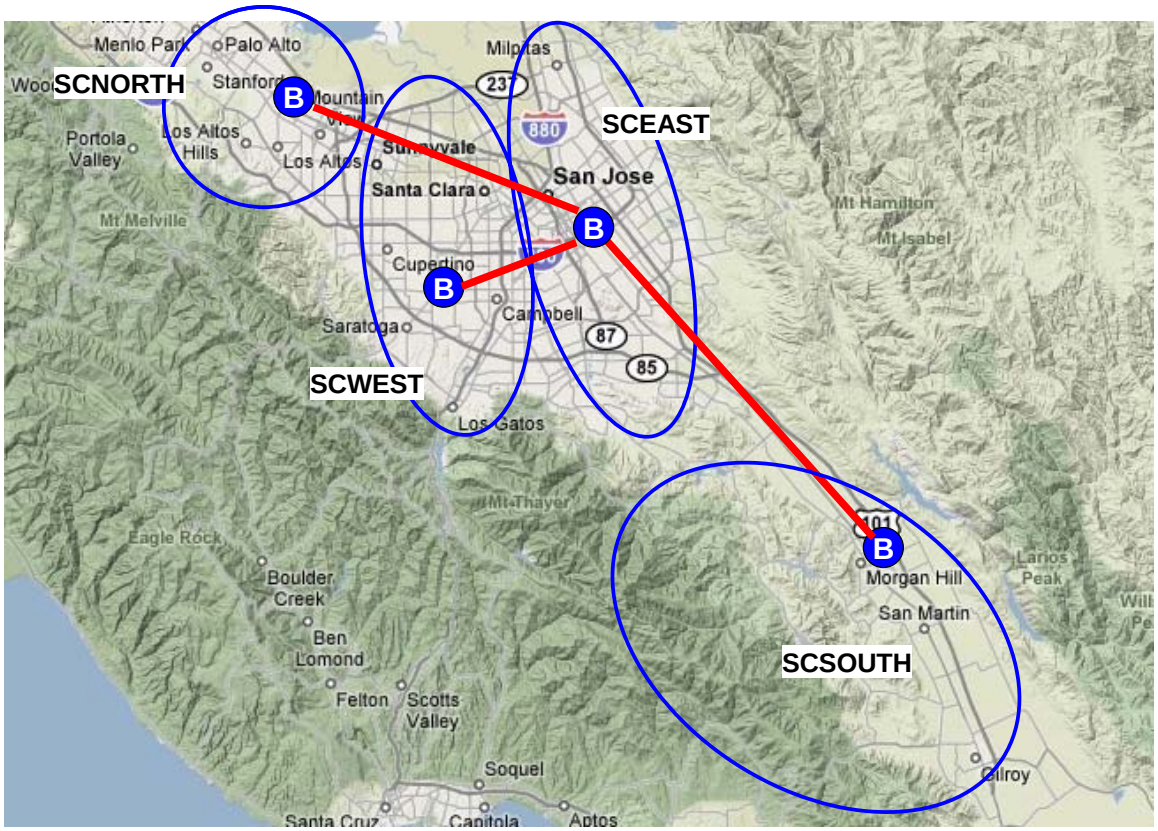
3.4 Frequency Plan

The following are the JNOS Message Server frequencies configured for each server.

- All JNOS Message Servers are on the same 440 Interlink frequency operating at 9600 baud.
- The bulk of the cities will operate on 220 for user access.
- SCSOUTH will operate a 2 meter user access frequency.
- All JNOS Message Servers will support a 2 meter user access port to support select city or MAC responder packet operations.

Node Name	SCNORTH	SCSOUTH	SCEAST	SCWEST
Host City	Mountain View	Morgan Hill	San Jose	Cupertino
Interlink Frequency	433.410 MHz	433.410 MHz	433.410 MHz	433.410 MHz
1.25 m User Access Frequencies	223.540 MHz		223.620 MHz	223.700 MHz
2 M user access Frequencies	144.310 MHz	145.730 MHz	144.990 MHz	145.690 MHz

Table 5 – RF channels



3.5 JNOS Mail Server key configuration settings

Host City	Mountain View	Morgan Hill	San Jose	Cupertino
Host Name	SCNORTH	SCSOUTH	SCEAST	SCWEST
IP Address	44.4.2.1	44.4.14.128	44.4.12.1	44.4.6.1
BBS Connect Name	K6MTV	K6WWS	W6XSC	K6KP
AX25 name	K6MTV	K6WWS-5	W6XSC -5	K6KP-5
AX25 Link name	K6MTV-6	K6WWS-6	W6XSC -6	K6KP-6
Direct routes to:	SCEAST SCWEST	SCEAST	SCNORTH SCSOUTH SCWEST	SCNORTH SCEAST
Indirect Routes to:	SCSOUTH	SCNORTH SCWEST		SCSOUTH

Table 6 – Key Configurations

3.6 Mail handling with SMTP

The JNOS Mail Severs will use SMTP (Simple Mail Transfer Protocol) as the protocol for sending e-mail messages between Mail Sever nodes. The messages will then be retrieved with Outpost or some other terminal emulator using AX.25.

A user uploads a message to a JNOS Mail Sever addressed to either another local user or a remote user residing on another JNOS Mail Sever. When this happens, one of the following things will occur.

1. If a message is addressed to another local user (name is either FccCall or TacCall), SMTP moves the message to the local mail directory for pickup by the addressee.
2. If a message is addressed to a user (name is either FccCall or TacCall), and the user name is "mapped" in the Alias File to include a remote domain name (name@otherbbs), and a route to that BBS exists, then the message will be forwarded to that BBS.
3. If a message is created with a user and domain name (name@otherbbs) and a route to that BBS exists, then the message will be forwarded to that BBS.
4. If a message is created with a name and domain name (name@otherbbs) and a route to that BBS does not exist, then the message will remain on that BBS.

We primarily will operate under the #1 or #2 situations described above. Incoming Messages are handled as follows:

5. If a message arrives from another BBS and is addressed to a user on this BBS (name@thisbbs), then the message address will be rewritten (name) to keep it local on this BBS.
6. If a message arrives from another BBS, is addressed to a different BBS (name@differentbbs), and a route exists to that BBS, then the message will be forwarded to that BBS.
7. If a message arrives from another BBS, is addressed to a different BBS, and NO route exists to that BBS, then the message will remain on this BBS.

11. Distribution Lists are implemented in the Alias File.

3.7 Technical Specifics

The technical JNOS Mail Server implementation consists of several subsystems or components:

1. PC environment. This is any contemporary Intel-based PC hardware that can run one of the following Operating Systems.
2. Operating System. JNOS runs on Linux, MS-DOS, and Windows (from the DOS Command console). It is likely that all CPS nodes will run under Windows 98 or greater given the wide-spread use and familiarity with Windows. The recommended O/S is MS-Windows XP.
3. JNOS Application. JNOS is typically distributed as a zip file with all necessary files and directories included. There are 2 main versions of JNOS that are available off of the internet: The JNOS v1.1m version is stable and has all the necessary controls and services compiled in that the CPS needs. A new JNOS 2.0f version is also available and under active development. However, the controls and services needed are not compiled into the published releases. While a host city may choose to recompile JNOS 2.0, JNOS v1.1m is planned for deployment.
4. JNOS Environment Files. These are a series of DOS Bat files that manage the environment around JNOS. See the section below for details.
5. Virtual Packet Driver. This is an Ethernet driver that is used for telnet connection over a LAN when the PC is connected to a LAN. The recommended driver is SWSVPKT.

The following sections describe the components in greater detail.

3.8 PC Environment

The PC on which JNOS will run will have the following requirements:

Processor	Intel-based, performance should be aligned to support the Operating System of choice.
Memory	Memory should be sufficient to support the Operating System of choice. 1.0Gb is recommended.
Display	Any
Comm Ports	▪ Comm Ports must be in the range of COM1 thru COM4 ▪ First Comm Port: 1st user port and one interlink port, single port is needed if a KAM-XL is used; else 2 COM ports are needed for separate TNCs. ▪ Second Comm Port: for the second user port. ▪ COM Ports can either be true serial or USB-to-Serial.
Networking	Optional; required if local users intend to telnet to this BBS over the Ethernet.

3.9 Operating System

JNOS Message Server nodes will run under Windows 98 or greater given the wide-spread use and familiarity with Windows. The recommended O/S is MS-Windows XP.

3.10 JNOS Application Directory Structure

There are several directories associated with JNOS. This section describes these directories.

\JNOS	Root JNOS directory; all other JNOS directories and files are located under this directory
\JNOS\FINGER	Finger is a JNOS command that lets you find information about users of the system. This directory contains Finger files for users on the system. Ref: JNOS Finger Command.
\JNOS\HELP	Contains the sysop console command help files. ACCESS: Sysop
\JNOS\LOGS	Contains various JNOS log files that are produced.
\JNOS\RCMD	This is a special directory used as the destination for uploading JNOS configuration files. The upload process uses FTP ACCESS: Sysop
\JNOS\TEMP	Temp directory for various uses
\JNOS\PUBLIC	This is a special directory for general users to upload to and download files from the JNOS node by FTP. ACCESS: anonymous, or <call sign>
\JNOS\SPOOL	Contains a number of directories and files used for mail handling.
\JNOS\SPOOL\HELP	Contains the help text files used by the built-in JNOS mailer/BBS.
\JNOS\SPOOL\MAIL	Directory where local mail gets delivered. Ii contains a message files for each user.
\JNOS\SPOOL\MQUEUE	The directory where mail gets queued for the SMTP process to handle. Messages created by local users are always written to this directory first. For messages to users on remote Nodes, the SMTP manages the message transfer. For messages to local users, SMTP writes the messages to the respective SPOOL\MAIL file.
\JNOS\SPOOL\NEWS	Contains files received from the news network with the NNTP protocol. Not enabled in the SCC BBS environment
\JNOS\SPOOL\RQUEUE	A directory fir Incoming mail.
\JNOS\SPOOL\SIGNATUR	A directory holding one ore more text files containing “signatures” to be appended to your messages. This feature is not planned for the CPS.

3.11 JNOS Application Files

There are several standard files associated with JNOS that are part of the base distribution. These files are described here.

\JNOS\ALIAS	This file manages mail alias mapping. It is read by the SMTP server as a control file, telling the mail server how to "expand" an address into full addresses for the re-directing of mail based on the contents of the data field, or internet email @ addresses.

	Aliases will be used to convert (i) one local name to another, (ii) a local name to a remote (smtp email) name, and (iii) explode a local name to multiple local or remote names (distribution lists). This file is used in conjunction with the \spool\REWRITE file to complete mail forwarding and handling. CPS: This file has a standard layout that each JNOS node will use. For a given JNOS node, messages sent to users on the same node will not be expanded. Messages sent to users on a different node will be expanded.
\JNOS\autoexec.nos	This file contains JNOS commands that are read at the time of JNOS startup. If the file is changed, JNOS must be stopped and restarted for the new commands to take effect.
\JNOS\DOMAIN.TXT	A flat database that maps domain names to their respective IP addresses. This file will be limited to the nodes within the CPS environment.
\JNOS\FTPUSERS	This file manages access control for ftp, telnet, and ppp, and determines what individual users are allowed to perform specific tasks on a particular system. User access should be set up for individuals that need FTP and telnet access to the BBS.
\JNOS\NET.RC	This file contains a list of 'hostname username password' used by the ftp command. If the host you ftp to is in this list, you will be logged in with the given username and password. This file is NOT USED for the CPS environment.
\JNOS\NOS.CFG	This file contains the names for the various files and directories used in JNOS. There is no need to change this file.
\JNOS\ONEXIT.NOS	This file contains the list of JNOS commands that are executed after the 'exit' command is given. Any valid JNOS command can be entered here.
\JNOS\POPUSERS	This file contains the list of users who can initiate a POP session against this BBS. This file is NOT USED for the CPS environment.
\JNOS\FINGER\fdbase.dat	If a username is fingered that doesn't have it's own file in the \JNOS\FINGER directory, then this file is searched. If a match is found, the whole line is returned to the requester.
\JNOS\SPOOL\areas	Contains the list of areas or categories of messages. Areas are essentially bulletin categories. For instance, areas can be FCC, ALLSCC, or 4SALE. JNOS will treat these messages as “bulletins” and all general access to logged on users. For CPS, this list of areas must be defined.
\JNOS\SPOOL\convmotd.txt	This is the welcome message when using the converse bridge. There are no plans to use this feature is NOT USED for CPS..
\JNOS\SPOOL\expire.dat	For messages listed in Areas, this file defines how long they will persist before they are deleted.
\JNOS\SPOOL\forward.bbs	The alternate method of transferring messages is by means of the F6FBB BBS Forward Protocol. This file defines how this

	process works. This transfer protocol and this file are NOT USED for the CPS environment.
\JNOS\SPOOL\ftpmodt.txt	This file contains the welcome message displayed to users who connect by FTP to this site.
\JNOS\SPOOL\mail.log	This file lists inbound and outbound mail transactions.
\JNOS\SPOOL\motd.txt	This file contains the mailbox message of the day.
\JNOS\SPOOL\mreg.txt	This files contains the registration help file. If a user connects to the BBS and has never registered, this message is displayed.
\JNOS\SPOOL\names.dat	This is the file where the mail daemon searches for full user names.
\JNOS\SPOOL\rewrite	This file performs a one-to-one mapping for addresses received by this node. The method of rewriting a message is from closest, most specific address to most global and non-specific address.
\JNOS\SPOOL\users.dat	This file contains information about a registered user, including name, home BBS, email address, and other custom settings for this account (ie: set up as eXpert). Every time this file is updated, a backup file is created named users.bak.

3.12 DOS Environment Files

There are three batch (.bat) files that are used to control the JNOS environment. These files are:

\JNOS\Jsetup.bat	This is a DOS .bat file that initializes the DOC environment with a variety of system variables used by JNOS. This .bat file must be run at least once after the PC boots and prior to the first run of JNOS.
\JNOS\Jloop.bat	This is a DOS .bat file that loop on the activities that need to occur or be checked prior to each time JNOS is started or restarted. The file is scheduled from Jsetup.bat.
\JNOS\Jstart.bat	This is a DOS .bat file that contains the program name and run command parameters for starting JNOS. This .bat file is usually run from the jloop.bat file, and can be run manually. The file is scheduled from Jloop.bat

4 Setting up a JNOS Message Server Node

4.1 Introduction

Configuring the JNOS software includes several different option settings to support a variety of needs. However, the base release of the application will be preconfigured. Only local JNOS Message Server customizations are required.

4.2 Before you begin

Before beginning, find or print the following documents. You should have them for reference.

NOSIntro – TCP/IP over Packet Radio	This is an introduction to the KA9Q Network Operating System. While this book is out of print, you possibly can find used copies on the Internet. Author: Ian Wade G3NRW
JNOS Commands Manual	Everything you want to know about JNOS and more. Includes: 1. JNOS system commands 2. Mail Box reference 3. user permissions 4. Key file descriptions, and 5. Interface Parameters. While there are both v1.1 and v2.0 out there, here is a good consolidated link: http://www.w1ngl.us/packet/JNOS_Sysop.htm
System Description	This document; overall system description of the Santa Clara County Packet System.

The JNOS configuration relies exclusively on text-based configuration files. The user should have access to an ASCII text editor to create and/or modify the necessary configuration files. All configuration files will end up in one of several JNOS directories.

Configuration Files that you must check or change

These files must be changed for your specific node.

Config File	Location	Description
Autoexec.nos	C:\jnos	Change to reflect node-specific parameters including identification, ports, and routing details. The file extension can be changed to correctly reflect the specific node, such as **autoexec.6kp** (for k6kp) or **autoexec.sou** (for SCSOUTH)
ALIAS	C:\jnos	Change to identify the users hosted on this node. If a new node is introduced and users are rebalanced across the CPS environment, all system-wide ALIAS files may also need to be changed. See details below.
DOMAIN.TXT	C:\jnos	Confirm that the CPS Alias node names are configured (SCNORTH, SCSOUTH, SCEAST, SCWEST)

Config File	Location	Description
FTPMOTD.TXT	C:\jnos\spool	Change this welcome message for FTP users logging on to this JNOS message server.
FTPUSERS	C:\jnos	Change to identify specific city telnet users, and sysadmin logons and passwords.
MOTD.TXT	C:\jnos\spool	Change this welcome message for JNOS message server users logging on to your BBS.
MREG.TXT	C:\jnos\spool	Optional, change the registration message to be presented to JNOS message server users who have not previously registered on this system.
ONEXIT.NOS	C:\jnos	Change to update specific JNOS commands to execute on an exit.
REWRITE	C:\jnos\spool	Change to reflect your node. See details below.

Configuration Files that you could change

These files may require some changes if your situation requires it. I made no changes to these files.

Config File	Location	Description
AREAS	C:\jnos\spool	Confirm that the SCC-agreed to "Bulletin" types are configured in.

Executable Files

Along with the Configuration files, these are the key executable files that you will encounter.

Exe File	Location	Description
Jnos110m.exe	c:\jnos	The JNOS program.

4.3 Finding and Installing the JNOS Software

A 90% configured CPS distribution will be delivered to all host cities from the County Packet Committee or kn6pe.

	Step	Notes
1	Contact the CPC or kn6pe for a copy of the CPS JNOS Distribution. This will be in the form of a .zip file.	This distribution includes all files in a close-to-complete state. The balance of this procedure helps set up these files.
2	Create a directory: c:\jnos	
3	Unzip the contents of the CPS JNOS Distribution into this directory.	

4.4 AUTOEXEC.NOS

As stated, the JNOS main configuration file is the autoexec.nos file. The file delivered with the distribution requires specific changes to ensure it integrates correctly into the CPS environment.

The following table describes the key pieces of information that needs to be gathered.

Field	Description	Notes, Reference
Host Name	This is the host name of the BBS.	See section 3.1 for values
Ip address	City assigned IP addresses are declared for Cupertino, San Jose, Gilroy, and Mountain View.	See section 3.1 for values
Ax25 mycall		See section 3.1 for values
Port info	Identify your comm port; see the sample text for settings.	
Ifconfig Link	???	See section 3.1 for values
Ifconfig descr	This attaches a description to the Comm Port.	
Ifconfig bbscall	This is the call that AX.25 packet users will use to connect to this BBS.	See section 3.1 for values
Ifconfig BC Text	JNOS will broadcast this text at the ax25 bcinterval=1200 (20 minutes)	
Ifconfig IP for Ethernet port	For this mode, a packet driver was added. Use some open IP address in your local domain.	
Ifconfig bcast	Equivalent broadcast mask for the above IP address	
Comm mycall		See section 3.1 for values
Comm <kiss setup>	My TNC was a KPC3. If it is other than an KPCx, see your TNC manual for the commands to set the TNC into kiss.	"int term" "int kiss" "reset"
Remote –s	See Remote Administration section.	<password>
domain addserver	My server will be a DNS server. Put your IP address here	See section 3.1 for values
Route add	Comment out the route to your node, comment in all others.	
Mbox haddress	Enter the same, but use your BBS call sign.	
Mbox qth		
Mbox password	Allows you to access the sysop commands from the BBS mailbox prompt. See Syop section.	<my password>
Motd	Change it to reflect your BBS settings.	

The following listing is the Autoexec.6kp file for SCWEST (Cupertino). The text listed in **BOLD PRINT** is specific to each node. These are the only lines that need to be changed. **TEXT in Blue** are comments and could be made part of the file as comments.

NOTE: Additional updates will be made to reflect the KAM-XL configuration, commented out here.

> **NOTE:** The file name must be no more than 8 characters with a 3 character extension. The SCWEST file is named **autoexec.6kp** with the "6kp" referencing the last 3 characters of the BBS call sign.

```
# AUTOEXEC.NOS FOR K6KP, SCWEST
# Version V3: Based on autoexec.nos for N0MR
# HISTORY
#       090129: changed to mbox newmail off
#       090210: remote start
# ================================================================
# Local Definitions
# ================================================================
```

> **NOTE:** The following memory commands work fine… Do not change these unless you really know what you are doing.

```
mem ibufsize 2048
mem nibufs 5
mem minalloc 0
watchdog yes
```

> **NOTE:** Update the hostname and IP Address for your node. The balance of the commands work fine… Do not change these unless you really know what you are doing.

```
hostname scwest.ampr.org
ip address 44.4.6.1
ip ttl 62
isat on
pause 1
# ================================================================
# AX25 Global settings
# ================================================================
```

> **NOTE:** Update the FCC Call Sign for this Message Server.

```
ax25 mycall k6kp-5
ax25 version 2
ax25 t2 1000
ax25 t3 0
ax25 t4 900
ax25 timertype original
ax25 bcinterval 1200

# JO Removed the following
# tcp access permit 141.224.128.8 25
# tcp access permit all 1 24
# tcp access permit all 26 110
# tcp access permit 44/8 1 110

pause 1
# ================================================================
# Attach ports
#  COM1 IRQ4 3F8H <==
#  COM2 IRQ3 2F8H
#  COM3 IRQ4 3E8H
#  COM4 IRO3 2E8H
# ================================================================
```

> **NOTE:** This is the first TNC defined. For this system, this port is called "2m"; subsequent interface commands will use this as the reference.

```
# Radio port 1 and 2 on com1
# 1200 baud Com port 1 on KPC
attach asy 0x3F8 4 ax25 2m 2048 256 9600
```

NOTE: the following attach line should be uncommented if using the KAM-XL dual port TNC. This port is called “uhf”.

```
# 9600 baud port 2 on KPC 9612
# attach kiss 2m 1 uhf
```

NOTE: the following attach line is for the SWSVPKT Driver. See section XX for details on its installation and use. This port is called “eth0”.

```
#Attach packet port to ethernet
attach packet 0x60 eth0 5 1500
# JO REMOVED: attach axip axi0 256 137.192.135.28 n0qbj-7
pause 1
# ================================================================
# Configuration of port 1
# ================================================================
```

NOTE: While several base parameters were assigned earlier in the file, specific interface values can be changed with the “ifconfig” command. Change the following 5 **bolded fields** with your settings.

```
ifconfig 2m ip 44.4.6.1
ifconfig 2m netmask 0xffffff00
ifconfig 2m broadcast 44.4.255.255
ifconfig 2m link k6kp-6
ifconfig 2m descr "Port 1 on 145.07 MHz @ 1200 Baud"
ifconfig 2m mtu 256
ifconfig 2m ax25 bbscall k6kp
ifconfig 2m ax25 bct "scwest.ampr.org [44.4.6.1], K6KP, Cupertino, CA"
```

NOTE: The balance of this section performs specific TCP and IP buffer settings. These work fine… Do not change these unless you really know what you are doing.

```
ifconfig 2m ax25 timertype original
ifconfig 2m ax25 blimit 10
ifconfig 2m ax25 maxwait 5000
ifconfig 2m ax25 irtt 4000
ifconfig 2m ax25 retries 10
ifconfig 2m ax25 paclen 192
ifconfig 2m ax25 pthresh 128
ifconfig 2m ax25 window 256
ifconfig 2m ax25 maxframe 1
ifconfig 2m tcp timertype linear
ifconfig 2m tcp blimit 10
ifconfig 2m tcp maxwait 8000
ifconfig 2m tcp irtt 4000
ifconfig 2m tcp mss 216
ifconfig 2m tcp window 256
pause 1
# ================================================================
# Configuration of Port UHF
# ================================================================
```

NOTE: This section will be updated after introducing the KAM-XL Dual Port TNC.

```
# ifconfig uhf ip 44.94.9.57
# ifconfig uhf broadcast 44.94.9.255
# ifconfig uhf netmask 0xffffff00
# ifconfig uhf link n0mr-uhf
# ifconfig uhf descr "Port UHF on 430.15 MHz @ 9600 baud"
# ifconfig uhf mtu 128
# ifconfig uhf ax25 bbscall n0mr
# ifconfig uhf ax25 bct "N0MR AX25 N0MR-UHF TCP/IP Two Harbors, MN."
# ifconfig uhf ax25 timertype original
# ifconfig uhf ax25 blimit 8
# ifconfig uhf ax25 maxwait 3000
# ifconfig uhf ax25 irtt 2500
# ifconfig uhf ax25 retries 10
# ifconfig uhf ax25 paclen 256
# ifconfig uhf ax25 pthresh 128
# ifconfig uhf ax25 window 2048
# ifconfig uhf ax25 maxframe 3
# ifconfig uhf tcp timertype linear
# ifconfig uhf tcp blimit 16
# ifconfig uhf tcp maxwait 8000
# ifconfig uhf tcp irtt 6000
```

```
# ifconfig uhf tcp mss 1460
# ifconfig uhf tcp window 120
# pause 1
# ================================================================
# Configuration of Port eth0
# ================================================================
```

NOTE: The ethernet port should be a derivative based on your local area network.

```
ifconfig eth0 ip 192.168.1.253
ifconfig eth0 broadcast 192.168.255.255
ifconfig eth0 netmask 0xffffff00
# ifconfig eth0 link ibm.n0mr
# ifconfig eth0 descr "Ethernet home network/internet connection"
# ifconfig eth0 mtu 128
# ifconfig eth0 ax25 bbscall n0mr
# ifconfig eth0 ax25 bct "N0MR AX25 N0MR-UHF TCP/IP Two Harbors, MN."
# ifconfig eth0 ax25 timertype original
# ifconfig eth0 ax25 blimit 8
# ifconfig eth0 ax25 maxwait 3000
# ifconfig eth0 ax25 irtt 2500
# ifconfig eth0 ax25 retries 10
# ifconfig eth0 ax25 paclen 256
# ifconfig eth0 ax25 pthresh 128
# ifconfig eth0 ax25 window 2048
# ifconfig eth0 ax25 maxframe 3
# ifconfig eth0 tcp access permit 141.224.128.8 25
ifconfig eth0 tcp timertype linear
ifconfig eth0 tcp blimit 16
ifconfig eth0 tcp maxwait 8000
ifconfig eth0 tcp irtt 6000
ifconfig eth0 tcp mss 1460
ifconfig eth0 tcp window 120
pause 1
#-----------------------------------------------------------
param 2m rts 1
param 2m dtr 1
ax25 digipeat 2m on
pause 1
# ================================================================
# Set comm parameters
# ================================================================
```

NOTE: This section performs some KISS-related TNC settings. These work fine… Do not change these unless you really know what you are doing.

```
# <KISS param 1> = TX Delay (10mS units):
# <KISS param 2> = Persist (1/256th units):
# <KISS param 3> = Slot time (10mS units):
# <KISS param 4> = TX-tail Delay (10mS units):
# <KISS param 5> = Duplex (0=half, 1=full):
param 2m 1 30
param 2m 2 200
param 2m 3 10
param 2m 4 1
param 2m 5 0
# param uhf 1 30
# param uhf 2 200
# param uhf 3 10
# param uhf 4 1
# param uhf 5 0
pause 1
# ================================================================
# NETROM SETUP
# ================================================================
```

NOTE: taken out of scope. We will not use NETROM. These lines are comments out and left here for reference only.

```
# JO COMMENTED ALL OUT
# attach netrom
# netrom g8bpq on
# netrom alias walbbs
# netrom call n0mr-3
# netrom interface 1 192
# netrom interface axi0 192
# netrom minqual 160
# netrom nodetimer 1800
```

```
# netrom retries 10
# netrom timertype linear
# netrom tdisc 600
# netrom hidden off
# pause 1
# ================================================================
# Misc
# ================================================================
```

NOTE: These lines will onlu work if the TNC is not already in KISS Mode. Otherwise, they have no affect on the TNC.

```
comm 2m "mycall K6KP-5"
comm 2m "int term"
comm 2m "int kiss"
comm 2m "reset"

mode 2m datagram
pause 1
# ================================================================
# Start Servers
# ================================================================
```

NOTE: These services are started to support various JNOS functions. Do not comment any of these out.

```
# JO REMOVED start netrom
start ax25
start ttylink
start telnet
start ftp
start smtp
start forward
# start finger
start pop3
```

NOTE: Remote allows the sysop to remotely force JNOS to exit or reset. Enter a password string. See the section on **Remote Administration** for details on how this will work.

```
start remote
remote -s <password>

pause 1
# ================================================================
# Domain setup
# ================================================================
```

NOTE: Change the addserver IP address to this node's IP address.

```
domain cache size 20
domain translate off
domain verbose on
domain suffix ampr.org.
domain addserver 44.4.6.1
domain maxwait 60
domain update on
# domain dns on
pause 1
# ================================================================
# Routing
# ================================================================
# ALL DEFAULT ROUTING IS SET UP IN ROUTING.NOS
arp sort off
arp eaves 2m on
```

NOTE: These lines define how to get from your node to the other SCC nodes. See the CPC or kn6pe for details on this setting. In SCWEST's case, we can reach all nodes directly except for SCSOUTH (44.4.14.128). We will route through SCEAST 44.4.12.1.

```
route add 44.4.2.1       2m direct
route add 44.4.14.128    2m 44.4.12.1
route add 44.4.12.1      2m direct
# route add 44.4.6.1     2m direct
route add 44.4.6.26      2m direct
route add default        2m direct
```

```
pause 1
# ====================================================================
# FTP
# ====================================================================
# ftpmaxservers 4
ftptdisc 3600
#
#
# ====================================================================
# Function Keys
# ====================================================================
# source /scripts/fkeys.scr
#
#
pause 1
# ====================================================================
# SMTP server setup
# ====================================================================
```

NOTE: This section manages SMTP behavior. These commands work fine… Do not change these unless you really know what you are doing.

```
smtp timer 300
smtp quiet no
smtp maxclients 8
smtp batch on
smtp t4 300
smtp mode route
smtp usemx off
smtp tdisc 300
smtp sendlzw off
pause 1
# ====================================================================
# Mailbox setup
# ====================================================================
```

NOTE: This section manages BBS Mailbox behavior. Change the call sign and QTH Settings only.

```
mbox attend off
mbox smtp off
mbox sendquery off
mbox register off
mbox nrid off
mbox haddress "k6kp.ca.usa.noam"
mbox qth "Cupertino, CA"
mbox tdisc 600
# mbox tdisc 0
mbox header on
mbox newmail off
mbox timer 1800
mbox mailfor 1800
mbox tmsg " Enter callsign for login, name for password."
# JO REMOVED mbox mailfor watch n0mr
mbox max 2
mbox mport 2m on
```

NOTE: See the section on Sysop.

```
mbox password   baja32sonora112yukon135
#              00000000001111111111222
#              01234567890123456789012
pause 1
# ====================================================================
# "Bulletins"
# ====================================================================
bulletin check yes
# bulletin holdold 15
bulletin date yes
bulletin return yes
bulletin loophold 1
pause 1
# ====================================================================
# "at" Commands
# ====================================================================
# JO REMOVED at now+0100 "smtp kick+"
# JO REMOVED at 00725 "rdate server 132.163.4.101"
# JO REMOVED at 00730 exit /*
```

```
# JO REMOVED at 00735 "net load"
# JO REMOVED pause 1
# ====================================================================
# Tracing
# ====================================================================
trace 2m 0311
# trace uhf 0311
trace eth0 0311
smtp trace 5
pause 1
# ====================================================================
# Misc
# ====================================================================
motd "Connected to the TCP/IP station of K6KP, Cupertino, CA."

ftype image
# echo refuse
# log no
log yes
attend off

ax25 bc 2m
smtp kick

remark JNOS installation complete!
```

4.5 ALIAS file

The following are the critical entries for each CPS node's Alias file. Lines preceded with a "#" sign are comments. Each of these entries are one-to-one mapping where the first phrase (i.e.: pafeoc) gets turned into the second parameter (pafeoc@scnorth).

SCNORTH	SCSOUTH	SCEAST	SCWEST
# DO NOT expand SCNORTH	# Expand SCNORTH	# Expand SCNORTH	# Expand SCNORTH
# pafeoc pafeoc@scnorth	pafeoc pafeoc@scnorth	pafeoc pafeoc@scnorth	pafeoc pafeoc@scnorth
# pafarc pafarc@scnorth	pafarc pafarc@scnorth	pafarc pafarc@scnorth	pafarc pafarc@scnorth
# stueoc stueoc@scnorth	stueoc stueoc@scnorth	stueoc stueoc@scnorth	stueoc stueoc@scnorth
# laheoc laheoc@scnorth	laheoc laheoc@scnorth	laheoc laheoc@scnorth	laheoc laheoc@scnorth
# loseoc loseoc@scnorth	loseoc loseoc@scnorth	loseoc loseoc@scnorth	loseoc loseoc@scnorth
# mtveoc mtveoc@scnorth	mtveoc mtveoc@scnorth	mtveoc mtveoc@scnorth	mtveoc mtveoc@scnorth
# nameoc nameoc@scnorth	nameoc nameoc@scnorth	nameoc nameoc@scnorth	nameoc nameoc@scnorth
# Expand SCSOUTH	**# DO NOT expand SCSOUTH**	# Expand SCSOUTH	# Expand SCSOUTH
gileoc gileoc@scsouth	# gileoc gileoc@scsouth	gileoc gileoc@scsouth	gileoc gileoc@scsouth
mrgeoc mrgeoc@scsouth	# mrgeoc mrgeoc@scsouth	mrgeoc mrgeoc@scsouth	mrgeoc mrgeoc@scsouth
# Expand SCEAST	# Expand SCEAST	**# DO NOT Expand SCEAST**	# Expand SCEAST
sjceoc sjceoc@sceast	sjceoc sjceoc@sceast	# sjceoc sjceoc@sceast	sjceoc sjceoc@sceast
sjcarc sjcarc@sceast	sjcarc sjcarc@sceast	# sjcarc sjcarc@sceast	sjcarc sjcarc@sceast
xsceoc xsceoc@sceast	xsceoc xsceoc@sceast	# xsceoc xsceoc@sceast	xsceoc xsceoc@sceast
vwdeoc vwdeoc@sceast	vwdeoc vwdeoc@sceast	# vwdeoc vwdeoc@sceast	vwdeoc vwdeoc@sceast
sjweoc sjweoc@sceast	sjweoc sjweoc@sceast	# sjweoc sjweoc@sceast	sjweoc sjweoc@sceast
cbleoc cbleoc@sceast	cbleoc cbleoc@sceast	# cbleoc cbleoc@sceast	cbleoc cbleoc@sceast
cocomm cocomm@sceast	cocomm cocomm@sceast	# cocomm cocomm@sceast	cocomm cocomm@sceast
mlpeoc mlpeoc@sceast	mlpeoc mlpeoc@sceast	# mlpeoc mlpeoc@sceast	mlpeoc mlpeoc@sceast
# Expand ECWEST	# Expand ECWEST	# Expand ECWEST	**# DO NOT Expand ECWEST**
cupeoc cupeoc@scwest	cupeoc cupeoc@scwest	cupeoc cupeoc@scwest	# cupeoc cupeoc@scwest
sareoc sareoc@scwest	sareoc sareoc@scwest	sareoc sareoc@scwest	# sareoc sareoc@scwest
lgteoc lgteoc@scwest	lgteoc lgteoc@scwest	lgteoc lgteoc@scwest	# lgteoc lgteoc@scwest
lgredc lgredc@scwest	lgredc lgredc@scwest	lgredc lgredc@scwest	# lgredc lgredc@scwest
msoeoc msoeoc@scwest	msoeoc msoeoc@scwest	msoeoc msoeoc@scwest	# msoeoc msoeoc@scwest
snyeoc snyeoc@scwest	snyeoc snyeoc@scwest	snyeoc snyeoc@scwest	# snyeoc snyeoc@scwest
snceoc snceoc@scwest	snceoc snceoc@scwest	snceoc snceoc@scwest	# snceoc snceoc@scwest

Additionally, each ALIAS file has definitions for distribution lists. Similar to the above entries where there is a one-to-one mapping, distribution lists can do a one-to-many mapping where the first address (i.e.: allscc) gets turned into multiple 4 messages each with a different address (scnorth scsouth@scsouth sceast@sceast scwest@scwest).

SCNORTH	# 3. Define Mailing Lists for outbound traffic allscc scnorth scsouth@scsouth sceast@sceast scwest@scwest # 4. Define Mailing Lists for inbound traffic scnorth pafeoc pafarc stueoc laheoc loseoc nameoc mtveoc # scsouth gileoc mrgeoc # sceast sjceoc sjcarc xsceoc vwdeoc sjweoc cbleoc cocomm mlpeoc # scwest cupeoc sareoc lgteoc lgredc msoeoc snyeoc snceoc
SCSOUTH	# 3. Define Mailing Lists for outbound traffic allscc scnorth@scnorth scsouth sceast@sceast scwest@scwest # 4. Define Mailing Lists for inbound traffic # scnorth pafeoc pafarc stueoc laheoc loseoc nameoc mtveoc scsouth gileoc mrgeoc # sceast sjceoc sjcarc xsceoc vwdeoc sjweoc cbleoc cocomm mlpeoc # scwest cupeoc sareoc lgteoc lgredc msoeoc snyeoc snceoc
SCEAST	# 3. Define Mailing Lists for outbound traffic allscc scnorth@scnorth scsouth@scsouth sceast scwest@scwest # 4. Define Mailing Lists for inbound traffic # scnorth pafeoc pafarc stueoc laheoc loseoc nameoc mtveoc # scsouth gileoc mrgeoc sceast sjceoc sjcarc xsceoc vwdeoc sjweoc cbleoc cocomm mlpeoc # scwest cupeoc sareoc lgteoc lgredc msoeoc snyeoc snceoc
SCWEST	# 3. Define Mailing Lists for outbound traffic allscc scnorth@scnorth scsouth@scsouth sceast@sceast scwest # 4. Define Mailing Lists for inbound traffic # scnorth pafeoc pafarc stueoc laheoc loseoc nameoc mtveoc # scsouth gileoc mrgeoc # sceast sjceoc sjcarc xsceoc vwdeoc sjweoc cbleoc cocomm mlpeoc scwest cupeoc sareoc lgteoc lgredc msoeoc snyeoc snceoc

Sample ALIAS File

This is the SCNORTH node ALIAS file

```
#  ***************************************************************
#  FILE:         ALIAS
#  NODE:         ax.25 = k6MTV, host = SCNORTH
#  TITLE:        JNOS v.110M alias file
#  DATE:         29 November 2008
#  AUTHOR:       Jim O / kn6pe
#  ***************************************************************
#  HISTORY
#  11/24/08:   started with K6FB file set
#  ***************************************************************

# 1. Generate full remote addresses for FORWARDING to participating cities
# This lets us send a message to the xxxeoc name (sp cupeoc) only and it
# will be sent to the right location BBS.

# NOTE TO LOCAL SYSOP:
# comment out your particular cities... we want to keep any mail sent from
# a local city to another local city local


# Expand SCCNORTH addresses
# pafeoc pafeoc@scnorth
# pafarc pafarc@scnorth
# stueoc stueoc@scnorth
# laheoc laheoc@scnorth
# loseoc loseoc@scnorth
# mtveoc mtveoc@scnorth
# nameoc nameoc@scnorth

# Expand SCSOUTH addresses
gileoc gileoc@scsouth
mrgeoc mrgeoc@scsouth

# Expand SCEAST addresses
sjceoc sjceoc@sceast
sjcarc sjcarc@sceast
xsceoc xsceoc@sceast
vwdeoc vwdeoc@sceast
sjweoc sjweoc@sceast
cbleoc cbleoc@sceast
cocomm cocomm@sceast
mlpeoc mlpeoc@sceast

# Expand ECWEST -- scwest addresses
cupeoc cupeoc@scwest
sareoc sareoc@scwest
lgteoc lgteoc@scwest
lgredc lgredc@scwest
msoeoc msoeoc@scwest
snyeoc snyeoc@scwest
snceoc snceoc@scwest


# 2. For addresses w/o a path... yet, send it to hold@scwest and disposition
xszeoc hold@scwest


# 3. Define Mailing Lists for outbound traffic
# after issuing a "sp allscc" locally, a copy is sent to each recipients

allscc scnorth scsouth@scsouth sceast@sceast scwest@scwest


# 4. Define Mailing Lists for inbound traffic
# on receiving a message, first, Rewrite will strip off the @scxxx, and then
# "alias" file is processed to produce a local copy for each
# ***NOTE:  Comment out all except for this node

scnorth pafeoc pafarc stueoc laheoc loseoc nameoc mtveoc
# scsouth gileoc mrgeoc
# sceast sjceoc sjcarc xsceoc vwdeoc sjweoc cbleoc cocomm mlpeoc
# scwest cupeoc sareoc lgteoc lgredc msoeoc snyeoc snceoc
```

```
# 5. Define this node's sysop


# 6. Send these messages back to scc system administrator
# ***NOTE: each node sysop needs an equivalent account set up; change kn6pe to
your call

check kn6pe
sysop kn6pe

# 7. This set works in conjunction with rewrite

all users
user users

# 8. For anything else that is not matched above. it is assumed it
# is a local address.
```

4.6 DOMAIN.TXT file

This file maps host names to IP names. This file will be delivered with settings for all CPS nodes. No changes should be required on initial installation.

This is the common CPS Message Server Domain.txt file:

```
; 090115: santa clara county packet nodes only
all-norcal    IN     A      44.4.0.0
norcal        IN     A      44.4.0.1
mtview        IN     A      44.4.2.1
scnorth       IN     cname  mtview
cupertino     IN     A      44.4.6.1
scwest        IN     cname  cupertino
kn6pe         IN     A      44.4.6.26
sanjose       IN     A      44.4.12.1
sceast        IN     cname  sanjose
gilroy        IN     A      44.4.14.128
scsouth       IN     cname  gilroy
norcalbroadcast     IN     A      44.4.255.255
```

4.7 REWRITE file

The following are the critical entries for each CPS node Rewrite file.

SCNORTH	SCSOUTH	SCEAST	SCWEST
# BLOCK 2: everything addressed to us from the outside stays here *%*@scnorth* $1@$2 r *%*@scsouth* $1@$2 r *%*@sceast* $1@$2 r *%*@scwest* $1@$2 r # BLOCK 6: everything addressed to a local user stays here. If they are not really local, 'ALIAS' will fix that. *@ scnorth * $1 # *@scsouth* $1 # *@sceast* $1 # *@scwest* $1 # BLOCK 7: for remote sites that may be off-line, put them back into the mqueue and keep trying. # *@ scnorth * $1@ scnorth *@scsouth* $1@south *@sceast* $1@sceast *@scwest* $1@scwest	everything addressed to us from the outside stays here *%*@scnorth* $1@$2 r *%*@scsouth* $1@$2 r *%*@sceast* $1@$2 r *%*@scwest* $1@$2 r # BLOCK 6: everything addressed to a local user stays here. If they are not really local, 'ALIAS' will fix that. # *@scnorth* $1 *@scsouth* $1 # *@sceast* $1 # *@scwest* $1 # BLOCK 7: for remote sites that may be off-line, put them back into the mqueue and keep trying. *@scnorth* $1@scnorth # *@scsouth* $1@south *@sceast* $1@sceast *@scwest* $1@scwest	everything addressed to us from the outside stays here *%*@scnorth* $1@$2 r *%*@scsouth* $1@$2 r *%*@sceast* $1@$2 r *%*@scwest* $1@$2 r # BLOCK 6: everything addressed to a local user stays here. If they are not really local, 'ALIAS' will fix that. # *@scnorth* $1 # *@scsouth* $1 *@sceast* $1 # *@scwest* $1 # BLOCK 7: for remote sites that may be off-line, put them back into the mqueue and keep trying. *@scnorth* $1@scnorth *@scsouth* $1@south # *@sceast* $1@sceast *@scwest* $1@scwest	everything addressed to us from the outside stays here *%*@scnorth* $1@$2 r *%*@scsouth* $1@$2 r *%*@sceast* $1@$2 r *%*@scwest* $1@$2 r # BLOCK 6: everything addressed to a local user stays here. If they are not really local, 'ALIAS' will fix that. # *@scnorth* $1 # *@scsouth* $1 # *@sceast* $1 *@scwest* $1 # BLOCK 7: for remote sites that may be off-line, put them back into the mqueue and keep trying. *@scnorth* $1@scnorth *@scsouth* $1@south *@sceast* $1@sceast # *@scwest* $1@scwest

Sample REWRITE File

This is the SCNORTH node REWRITE file:

```
#  ****************************************************************
#
#  FILE:        jnos\SPOOL\REWRITE
#  NODE:       ax.25 = k6fb, hpost = scwest
#  TITLE:       K6FB JNOS v.110M Rewrite file
#  DATE:        24 November 2008
#  AUTHOR:      Jim O / kn6pe
#
#  ****************************************************************
#
#  DESCRIPTION
#  This file performs a one-to-one mapping for addresses recieved
#  by this node.  The method of rewriting a message is from
#  closest, most specific address to most global and nspecific
#  address.
#
#  A template contains a combination of verbatim ascii text, and special
#  characters "?*+\".  To treat a special character as an ordinary
#  character, precede it by '\'.  The '?' character matches any single
#  character, '*' matches any number of consecutive characters (including
#  zero), and '+' matches a sequence of one or more characters.  In the
#  second field, the character "$", followed by a single digit in the
#  range 1 to 9, represents the string that matched the respective '*'
#  or '+' in the template.
#
#  ****************************************************************
#  HISTORY
#  11/24/08:   updated for SCC Packet Network
#  ****************************************************************

# BLOCK 1: first keep a bunch of 'real' internet domains the same.
# WARNING!  Rescanning the .org entries to ensure we can handle ampr.org
# causes this to infinitely loop...  no 'r' in this section.
*@*.edu $1@$2.edu
*@*.com $1@$2.com
*@*.gov $1@$2.gov
*@*.org $1@$2.org

# BLOCK 2:  everything addressed to us from the outside stays here.  This takes
# an kn6pe%scwest@att.net and turns it into just kn6pe@scwest.

*%*@scnorth* $1@$2 r
*%*@scsouth* $1@$2 r
*%*@sceast* $1@$2 r
*%*@scwest* $1@$2 r

# BLOCK 3: rewrite stuff you don't want to 'refuse'.  This will not be a problem
# unless we start to get national BBS feeds to the CPS environment.
astro@* refuse
*@dist9* refuse
*@allin* refuse
*@okipn* refuse
*@allil* refuse
*@vknet* refuse
msys@* refuse
fbb@* refuse
mods@* refuse

# BLOCK 4:  set up a bunch of 'to' address rewrite rules for local AREAS on this
# system.  This will not apply unless we start to get national BBS feeds to the
# CPS environment.  These are here for reference only.

tcpip@* tcpip
wanted@* wanted
want@* wanted
need@* wanted
sale@* sale
4sale@* sale
trade@* sale
swap@* sale
dx@* dx
help@* help
humor@* humor
jokes@* humor
```

```
happy@* humor
races@* races
fcc@* fcc
amsat@* amsat
arrl@* arrl
ares@* ares
nasa@* nasa
lcarc@* lcarc
science@* science
users@* users

# BLOCK 5:  setup rewrite rules for @bbs fields for local AREAS the bbs has.
# This will not apply unless we start to get national BBS feeds
# to the CPS environment.  These are here for reference only.

*@ww* refuse
*@nasa* nasa
*@amsat* amsat
*@ares* ares
*@arrl* arrl
*@arl* arrl
*@pnw* pnw
*@allca* allca
*@allusw* allusw
*@allus* allusa

# BLOCK 6: everything addressed to a local user stays here.  If
# they are not really local, 'ALIAS' will fix that.

*@scnorth* $1
*@scsouth* $1
*@sceast* $1
*@scwest* $1

# BLOCK 7: for remote sites that may be off-line, put them back into
# the mqueue and keep trying.

*@scnorth* $1@scnorth
*@scsouth* $1@scsouth
*@sceast* $1@sceast
*@scwest* $1@scwest

# BLOCK 8: BBS fwd rewrites are temporarily excluded

# BLOCK 9: NTS fwd rewrites are temporarily excluded

# BLOCK 10: anything left at this point is not properly handled!
# Rewrite it to a 'check' area, so i can read it back home.
# Adjust the rewrite file, and send this mail on its way.

*@* check
```

4.8 FTPUSERS file

The text of this file describes how to set up access for specific users that need to access the node by FTP or telnet.

```
#  ***************************************************************
#  * FILE:         FTPUSERS
#  * TITLE:        SCWEST JNOS v.110M user account file
#  * DATE:         29 November 2008
#  * AUTHOR:       Jim O / kn6pe
#  ***************************************************************
#  * 11/29/08: updated for SCC Packet Network
#  ***************************************************************


# Format:
# ---------------------------------------------------------------
# <username> <password> <root_dir> <permissions>
# ---------------------------------------------------------------
# N.B.     EXACTLY ONE SPACE between fields.
#
# <password> is any string of characters, without spaces/tabs.
#   An asterisk in this field indicates that any password will
#   be accepted; by convention, users then give their callsign
#   as the password.
#
# <root_dir> is the highest directory level which the user is
#   permitted to access.  This must be expressed as an absolute
#   full pathname from the DOS root, but without drive letter.
#
#   N.B.  In the examples included in NOSview, the DOS root is
#         N: (because of the SUBST N: command in NOSENV.BAT).
#         This removes the risk of accidentally allowing users
#         to access directories outside the scope of NOS.
#
# <permissions>
# ftp and telnet
# --------------
# define FTP_READ          1  Read files
# define FTP_CREATE        2  Create new files
# define FTP_WRITE         4  Overwrite or delete existing files

# telnet only
# -----------
# define AX25_CMD          8  AX.25 gateway operation allowed
# define TELNET_CMD       16  Telnet gateway operation allowed
# define NETROM_CMD       32  NET/ROM gateway operation allowed
# define SYSOP_CMD        64  Remote sysop access allowed
# define EXCLUDED_CMD    128  This user is banned from the BBS

# ppp only
# --------
#                        256  PPP connection
#                        512  peer ID/password lookup

# other behaviors
# ---------------
# define NO_SENDCMD     1024  Disallow send command
# define NO_READCMD     2048  Disallow read command
# define NO_3PARTY      4096  Disallow third-party mail
# define IS_BBS         8192  This user is a bbs
# define IS_EXPERT     16384  This user is an expert
# define NO_CONVERS    32768  Disallow convers command
# define NO_ESCAPE     65536  Default is no escape
# define NO_LISTS     131072  No lists displayed from mailbox
# define NO_LINKEDTO  262144  No '*** LINKED TO' allowed

#
# Be very careful about giving access to sensitive directories.
# Although you can theoretically prevent unauthorized access
# through password protection, remember that anyone can monitor
# the channel and discover user passwords as they are being
# transmitted.
#
# If a user connects to the BBS using vanilla AX.25 or NET/ROM
# (not telnet), access is granted without having to provide a
# login username or password.  In this case the user name is
```

```
# assumed to be the AX.25 callsign (without SSID).
# IF THIS CALLSIGN MATCHES A USER NAME IN FTPUSERS, THE CALLER
# GAINS THE PERMISSIONS ASSIGNED TO THAT USER.  THUS ANY USER
# NAMES THAT LOOK LIKE CALLSIGNS SHOULD HAVE A SAFE SET OF
# PERMISSIONS.
#
# Therefore if you wish to prevent vanilla AX.25 users gaining
# directory access, user names should be 7 or 8 characters long.

# typical permission configurations
# ---------------------------------
# 8195   bbs:      is_bbs+read+create
# 16511  sysops:   is_expert+sysop+(all-access; 1 thru 32)
# 278547 regular:  no_linked_to+is_expert+telnet+read+create
# 16443  regular+: is_expert+netrom+telnet+ax25+read+create
# 16447  regular+: 16443+delete
#                  is_expert+

# Miscellaneous (FTP) accounts requiring no password
# --------------------------------------------------
anonymous   *        /public  3
bbs         *        /public  3
guest       *        /public  16443
*           *        /public  16443

# City accounts; set up with 16511 access
# ---------------
pafeoc      pafeoc  /public  16511
pafarc      pafarc  /public  16511
stueoc      stueoc  /public  16511
lahedc      laheoc  /public  16511
loseoc      loseoc  /public  16511
mtveoc      mtveoc  /public  16511
nameoc      nameoc  /public  16511

# Other Special accounts
# ----------------
k6fsh       bobf     /public  16511
kn6pe       jimo     /public  16511
logon1      password /rcmd    3
logon2      password /        16511
```

User Accounts should be defined for the following individuals

City access	This allows users to telnet to the BBS. Change the 2ns parameter from <cityeoc> to “*” for no password.

5 Setting up the PC Environment

5.1 Introduction

There are three DOS batch (.bat) files that are used to control how JNOS operates within the DOS environment. These files are:

\JNOS\Jsetup.bat	This is a DOS .bat file that initializes the DOC environment with a variety of system variables used by JNOS. This .bat file must be run at least once after the PC boots and prior to the first run of JNOS.
\JNOS\Jloop.bat	This is a DOS .bat file that loop on the activities that need to occur or be checked prior to each time JNOS is started or restarted. The file is scheduled from JSetup.bat.
\JNOS\Jstart.bat	This is a DOS .bat file that contains the program name and run command parameters for starting JNOS. This .bat file is usually run from the jloop.bat file, and can be run manually. The file is scheduled from Jloop.bat.

5.2 Boot Process

The following describes the Boot Process for JNOS. It assumes Windows XP is the installed operating system.

Bootup	The PC boots, loads Windows.
AUTOEXEC.NT	Called from the Boot Process, loads the SWSVPKT packet driver. See the section on SWSVPKT Packet Driver.
C:\jnos\jsetup.bat | | | J:\jloop.bat | |-J:\rcmd01.bat | | |-J:\rcmd02.bat | | |-J:\jstart.bat | | |-J:\jnos110m.exe	Scheduled by Windows Startup Maps a Drive letter to c:\JNOS, and sets up the PATH variable.
	Scheduled by jsetup.bat Installs JNOS config files into their appropriate directory.
	Scheduled from jloop.bat Jloop checks if the rcmd01.bat file is present. If it exists, the file is scheduled. See the section on Remote Administration.
	Scheduled from jloop.bat Jloop checks if the rcmd02.bat file is present. If it exists, the file is scheduled. See the section on Remote Administration.
	Scheduled from jloop.bat This file contains the exact run string needed to start up JNOS.
	Scheduled from jstart.bat The JNOS executable.

5.3 Jsetup.bat file

This is a DOS Script that is first called by the Windows Startup process. You can set this up by creating a shortcut to this file, and dragging it into the following directory
C:\Documents and Settings\<user_name>\Start Menu\Programs\Startup

When this script file is run, to automatically opens a DOS Command window and all subsequent execution occurs from here.

This script does the following things:

1. Associates a directory path to a drive letter. The script assigns the JNOS directory to the J: drive letter. This ensures that users who access the Node cannot get to the C: drive (no cd <drive>: command from the BBS Prompt).
2. Updates the System Path with this new Drive Letter.
3. Sets the Time Zone (TZ) parameter to GMT. The PC clock Must be set to GMT (or UTC) time. Outpost will handle the GMT to Local time conversion.
4. Calls the Jloop.bat script.

```
@ECHO OFF

REM =============
REM J:\Jsetup.BAT
REM =============

SUBST j: /D
SUBST J: c:\Jnos-xxx

PATH=%PATH%;J:\
SET TZ=GMT0

J:
Call Jloop.bat
```

5.4 Jloop.bat file

This script is the heart of the DOS process and ensures that JNOS continues to run. The script does the following things:

1. Sets up a DOS parameter containing the log file name for all Jloop script output
2. Step 1: deletes any extraneous SMTP file locks. This should never occur, but is a good check just in case JNOS terminates in some unplanned way.
3. Step 2: Checks for and unzips any .zip files. This requires a DOS version of PKZIP on the NODE. This is useful when uploading a large number of files. NOTE: this step may be dropped in the future.
4. Step 3: Checks for and executes the RCMD01.BAT file. When done, this file is deleted. See the Section on Remote Administration for a description and use of this file.
5. Step 4: Checks for the REBOOT.01 file. If found, the script deletes this file, and then executes the DOS shutdown command configured for restart. This is useful if you are replacing the Jsetup.bat or Jloop.bat files, and need the complete JNOS Boot process to restart.
6. Steps 5 through 11: Checks for 7 specific JNOS configuration files. If found, they are copied to their intended JNOS directory. See the Section on Remote Administration.
7. Step 12: Checks for and executes the RCMD02.BAT file. When done, this file is NOT deleted. See the Section on Remote Administration for a description and use of this file.

8. Step 13: Checks for the REBOOT.02 file. If found, the script deletes this file, and then executes the DOS shutdown command configured for restart.
9. Step 14: Checks for the STOP.01 file. If found, the script deletes this file, and then exists the Jloop script. JNOS is not restarted and requires a manual restart.
10. Step 15: Calls the Jstart.bat file to start the JNOS Program.
11. If JNOS exists for any reason (remotely commanded or aborted), control is passed back to the top of the Jloop.bat script and starts with Step 1 above.

```
@echo off
rem: NAME: jloop.bat
rem: DESC: jnos loop command file
rem: DATE: 090129

SET JLOG=j:\rcmd\jloop.log
j:

echo ------------------------------------------------------------ >>%JLOG%
echo %date% %time% JLOOP Initial Start >>%JLOG%

:loop
rem: we are here because we are starting up for the first time or have
rem: just exited JNOS by a remote command.  Regardless, step through the
rem: following 14 steps.  Log everything to the logfile to be retrieved

echo ------------------------------------------------------------ >>%JLOG%
echo %date% %time% JLOOP Loop Sequence >>%JLOG%

rem: Step 1. delete any smtp mqueue locks
  if EXIST j:\spool\mqueue\*.lck   (
        echo Found SMTP locks; deleting >>%JLOG%
        del /Q j:\spool\mqueue\*.lck )

rem: Step 2. Unzip a command file if one was uploaded.  Assumes a DOS version
rem: of PKZIP is installed on the node.
  if EXIST j:\rcmd\*.zip   (
        echo Unzipping upload files... >> %JLOG%
        unzip j:\rcmd\*.zip >>%JLOG% )

rem: Step 3. Check for and run the Preload BAT File
  set FILE=rcmd01.bat
  if EXIST j:\rcmd\%file%   (
        echo Found Preload File; processing... >>%JLOG%
        call j:\rcmd\%file%
        del  j:\rcmd\%file%  )

rem: Step 4. Check for Preload PC Reboot
  if EXIST j:\rcmd\REBOOT.01  (
        echo PC Restart initiated... >>%JLOG%
        del  j:\rcmd\REBOOT.01
        shutdown -f -r -t 10 )

rem: Step 5. Move critical uploaded Files into place
  set FILE=autoexec.6kp
  if EXIST j:\rcmd\%file%   (
        echo Found %file%; installing >>%JLOG%
        copy j:\rcmd\%file%  j:\%file% >>%JLOG%
        del  j:\rcmd\%file% )

rem: Step 6.
  set FILE=FTPUSERS
  if EXIST j:\rcmd\%file%   (
        echo Found %file%; installing >>%JLOG%
        copy j:\rcmd\%file%  j:\%file% >>%JLOG%
        del  j:\rcmd\%file% )

rem: Step 7.
  set FILE=ALIAS
  if EXIST j:\rcmd\%file%   (
        echo Found %file%; installing >>%JLOG%
        copy j:\rcmd\%file%  j:\%file% >>%JLOG%
        del  j:\rcmd\%file% )

rem: Step 8.
```

```
  set FILE=ONEXIT.NOS
  if EXIST j:\rcmd\%file%   (
        echo Found %file%; installing >>%JLOG%
        copy j:\rcmd\%file%  j:\%file% >>%JLOG%
        del  j:\rcmd\%file% )

rem: Step 9.
  set FILE=DOMAIN.TXT
  if EXIST j:\rcmd\%file%   (
        echo Found %file%; installing >>%JLOG%
        copy j:\rcmd\%file%  j:\ %file% >>%JLOG%
        del  j:\rcmd\%file% )

rem: Step 10.
  set FILE=REWRITE
  if EXIST j:\rcmd\%file%   (
        echo Found %file%; installing >>%JLOG%
        copy j:\rcmd\%file%  j:\SPOOL\%file% >>%JLOG%
        del  j:\rcmd\%file% )

rem: Step 11.
  set FILE=NAMES.DAT
  if EXIST j:\rcmd\%file%   (
        echo Found %file%; installing >>%JLOG%
        copy j:\rcmd\%file%  j:\SPOOL\%file% >>%JLOG%
        del  j:\rcmd\%file% )

rem: Step 12. Check for and run the Postload Command File
  set FILE=rcmd02.bat
  if EXIST j:\rcmd\%file%   (
        echo Found Postload file; processing...  >>%JLOG%
        call j:\rcmd\%file% >>%JLOG%
        del  j:\rcmd\%file% )

rem: Step 13. Check for a PC Reboot
  if EXIST j:\rcmd\REBOOT.02  (
        echo Preload PC Restart initiated...  >>%JLOG%
        del  j:\rcmd\REBOOT.02
        shutdown -f -r  -t 10 )

rem: Step 14. Check for a Jloop process stop
  if EXIST j:\rcmd\STOP.01   (
        echo Found hard stop request; terminating JLOOP >>%JLOG%
        del  j:\rcmd\STOP.01
        goto end )

rem: Step 15. Restart JNOS
  set FILE=
  echo %date% %time% JLOOP Complete! restarting JNOS >>%JLOG%
  j:
  cd \
  call jstart
goto loop

:end

echo on
```

5.5 Jstart.bat file

This is the file that actually calls JNOS.

```
@ECHO OFF
REM ===============
REM J:\jstart.BAT
REM ===============

j:
jnos110m -fnos.cfg autoexec.nos
rem jnos110m -t -v -fnos.cfg autoexec.nos

PROMPT $P$G
```

5.6 Why 3 files?

All three files could be combined into the Jloop.bat file. However, there may be times when you want to manually control starting and stopping JNOS. This is when using the Jsetup.bat and Jstart.bat files come in.

1. Jsetup.bat only needs to be run once.
2. Jstart.bat is run whenever you want to run JNOS. After you exit, you can restart it by running Jstart.bat again.

5.7 Auto-boot the PC after Power-fail – Windows 98

The BBS PC may be located in a remote location and not readily available to an operator. Therefore, it is critical that the PC have the capability to boot up and run the JNOS BBS without any operator intervention.

Each version of Windows seems to set this up differently. In general, the best recommendation is to search the Internet using the following string:

"Prevent a Windows 98 Logon Prompt at Startup" or whatever version of windows you are using.

For the Windows 98 System, I ended up at the Microsoft Support site (http://support.microsoft.com/default.aspx?scid=http://support.microsoft.com:80/support/kb/articles/Q152/1/04.ASP&NoWebContent=1) and proceeded as follows:

1.	Remove the Windows Network Logon. Click **Start**, point to **Settings**, click **Control Panel**, and then double-click **Network**.	
2.	On the Configuration tab, click **Windows Logon in the Primary Network Logon** box, and then click **OK**.	
3.	When you are prompted to restart your computer, click **No**.	
4.	In Control Panel, double-click **Passwords**. On the Change Passwords tab, click **Change Windows Password**, select any of the check boxes that you want, and then click **OK**.	
5.	In the **Change Windows Password** dialog box, type your current Windows password in the Old Password box. Leave the New Password and Confirm New Password boxes **blank**, click **OK**, and then click **OK**.	
6.	Reboot the PC.	Verify the PC does not prompt you for a logon password.
7.	Make JNOS automatically boot up. Navigate to the c:\jnos directory.	

	Create a short-cut to jloop.bat Move the Shortcut to the Startup directory.	
8.	Reboot the PC.	

5.8 Auto-boot the PC after Power-fail – Windows XP

For Windows XP System, Art N9ZZK found this reference (http://www.dougknox.com/xp/tips/xp_autologon_home.htm) on how to set this up:

14.	Click Start, Run and enter CONTROL USERPASSWORDS2	
15.	In the list of users, highlight the user account you want automatically logged on.	
16.	Uncheck the box: "Users must enter a Username and password…"	
17.	Click Apply.	
18.	In the next dialog, enter the password for the account you selected in Step 2, if any	
19.	Press OK to complete.	

5.9 Periodic Shut-down/Auto-reboot of the PC

Depending on your situation, your PC may require a periodic rebooting to address a problem where some other program (none described in this document) degrades the system performance over time.

The following link points to a reboot utility that Art N9ZZK has used on his system to address a memory leak with another program he has running.:

Reboot utility: http://www.ampsoft.net/utilities/WinOFF.php

6 Setting up Swsvpkt

6.1 Introduction

Swsvpkt provides a packet driver emulation for DOS networking application running on Windows XP, 2000, and NT. The installation is generic and can support any DOS networking app. However, the discussion here is relevant only to this JNOS installation.

The requirements for installation are:

- An Intel Pentium compatible PC running Windows XP (Home, Professional or Server), Windows 2000 (Professional or Server), Windows NT 4 (Service Pack 6).
- 1 MB of free disk space.
- A Windows supported TCP/IP network e.g. Ethernet LAN, ADSL, cable or dial-up line.

This Guide is also not intended to replace the existing document that has been developed and included with the distribution of the software. Instead, it is a confirmed procedure to get Swsvpkt up and running in preparation for moving on to the JNOS portion of the project.

Note: If you really do not intent to telnet to JNOS from Outpost, then skip this chapter.

Note: While getting a Swsvpkt driver installed is not complex, it does require an ATTENTION TO DETAIL to avoid troubleshooting a problem that did not need to happen, particularly if your configuration is different from what is described here.

6.2 Finding the Swsvpkt Software

1	Create the directory: \JNOS-xxx\Drivers	If you are received a install-ready copy of JNOS from SCC Packet committee, this directory already exists, and the driver software is already downloaded. If this is the case, **skip to Step 5**. If not, proceed as follows.
2	Run your browser (Netscape, IE, etc.)	
3	Go to your favorite search site (ie: Google) and enter into the search field "Swsvpkt", or go to http://www.softsystems.co.uk/page7.html.	
4	Click on the Download link to retrieve the driver and save it in directory created above.	Verify that Swsvpkk1005.zip is downloaded. Click on the Release Notes. It is recommended that you have a copy of these available.

6.3 Installation

Swsvpkt does not comes with a typical "setup.exe" program that installs it in the "C:\Program Files" directory, do Windows Registry manipulations, or anything else. This is a network driver installation process and the following steps are are a reprint of the steps listed in the Release Notes.

5	Move the c:\JNOS-xxx\Drivers directory previously created and holding the Swsvpkt1005.zip file.	
6	Unzip the zip file contents into this directory.	
7	Make sure you are logged on to your PC with an account with administrative privilege.	
8.	Open the Network control panel, accessible from the desktop Start button menu: **Windows XP:** Control Panel > Network and Internet Connections > Network Connections **Windows 2000:** 'Settings> Control Panel> Network and Dial up Connections".	
9.	Double-click on the 'Local Area Connection' Then from the 'File' menu select 'Properties.	This will open the Local Area Connection Properties dialog
10.	Click the 'Install...' button.	Opens the 'Select Network Component Type' dialog.
11.	Select the 'Protocol' icon and click the 'Add...' button.	Opens the 'Select Network Protocol' dialog
12.	Click the 'Have Disk...' button Click 'Browse...' to open the 'Locate file' dialog. Use the controls to navigate to the folder containing SwsVpkt Verify that netvpkt.inf is listed in the File Name field. Press 'Open' to close this dialog. The Browse window will close.	
13.	Press OK to close the 'Install From Disk' dialog	
14.	Verify that the “Software Systems virtual packet driver” is selected and press OK to install	
15.	The installation process will run after which you will be returned to the 'Local Area Connection' dialog. In the list box you should see the item 'Software Systems virtual packet driver'	
16.	Click OK or Close on the 'Local Area Connection' dialog to complete the	The installation installs the following files:

	installation of the virtual packet driver protocol and support files.	C:\Windows\ssystem32\swsvpkt.exe C:\Windows\ssystem32\swsvpkt.dll C:\Windows\ssystem32\drivers\swsvpkt.sys files are placed in

6.4 Final System Configuration

17	Edit the following file:
	C:\windows\system32\AUTOEXEC.NT
	Add the following lines.
	`REM: Load swsvpkt driver`
	`LH %systemroot%\system32\swsvpkt`
	
	Do not make any other changes in this file. Save the file.
		The Swsvpkt driver must be loaded prior to JNOS to detect it. This is done by adding these lines to the AUTOEXEC.BAT. Then, at boot up, before the rest of Windows is loaded, the Swsvpkt driver is loaded.
		NOTE: the AUTOEXEC.NT file may be hidden. To unhide all files: Start> Settings> Control Panel> Folder Options> View. Click on "show hidden files and folders"… press OK

18	INCOMPLETE… PENDING	

7 Remote Administration

7.1 Overview

Remote administration may be required to update system files or perform JNOS BBS maintenance on a timely basis. Remote administration is implemented using RCMD – Remote Command Subsystem.

The RCMD subsystem allows an element of remote control over a remote JNOS node. This is of interest because of the effort it will usually take to actually visit the JNOS site to make a configuration change.

The primary objectives of RCMD are:

- Update a remote JNOS node with new configuration files
- Restart JNOS after installing new configuration files
- Perform routine diagnostics on the software and hardware components
- Perform routine system housekeeping
- Reboot the computer on command

To set up RCMD, perform the following steps (described in detail below):

1. Set up the FTP user account
2. Set up the REMOTE password
3. Create the source and destination JNOS directories
4. Configure JNOS to execute within a looping script (Jloop.bat, see below)
5. Test the configuration

7.2 RCMD System components

The following components are needed to make RCMD work:

Component	Description
JNOS Remote Service	JNOS supports a REMOTE Service that allows limited control over the target node to be controlled. The specific feature within the REMOTE Service used for RCMD is the “exit” function.
FTP Service	JNOS supports an FTP Service that lets files to be uploaded to the target node to be remotely controlled. Files or logs can also be retrieved. RCMD updated configuration or command files will be FTP’ed to the target JNOS node on which they will be copied or executed.
Admin JNOS Node	This is typically a home JNOS node that is configured into the SCC Packet Network. This node runs the FTP process and initiates the Remote Service requests.
Rcmd01.bat	Rcmd01.bat contains the DOC commands to install other JNOS files beyond the base files handled by Jloop.bat using the DOS copy commands. This file could be configured to do anything. On completion of executing, the Rcmd01.bat file is deleted. Rcmd01.bat should be designed to help clean up after itself.
Rcmd02.bat	Rcmd02.bat is similar to rcmd01.bat. This file will be scheduled on

	every JNOS restart (if it is present), but is not deleted after its execution. However, this file could be deleted with an embedded rcmd01.bat file delete command. NOTE: In both cases, tasks and commands scheduled by either file should never generate a system console prompt. If this happens, you physically will have to go to the JNOS site and manually restart the node.
Reboot.01	This file is created at the admin JNOS node and FTP'ed to the target JNOS Node. Its content is ether blank or anything. After Rcmd01.bat is executed, Jloop.bat checks for this file. If the file is found, it is deleted and a PC reboot is initiated.
Reboot.02	This file is created at the admin JNOS node and FTP'ed to the target JNOS Node. Its content is ether blank or anything. After Rcmd02.bat is executed, Jloop.bat checks for this file. If the file is found, it is deleted and a PC reboot is initiated.
Stop.01	This file is created at the administration JNOS node, content is blank or any content. If there is a requirement to stop JNOS from executing, this file is FTP'ed to the target JNOS node, and a remote exit is initiated.

7.3 RCMD Process sequence

In general, the Node Administrator will operate from a JNOS node (referred to Source Node) other than the one to be updated (referred to the Remote Node). At the Source Node site, the Remote Node configuration files are mastered, updated, and managed. When a change is needed to be applied to the Remote Node, the Node Administrator does FTPs to the remote node, uploads the files, exits, and then issues the remote command.

The RCMD process sequence is:

1. At PC boot time, the autoexec.bat or AUTOEXEC.NT schedules Jsetup.bat, then Jloop.bat. Jloop.bat will continue to run and loop until directly intervened by the user.
2. At the top of the Jloop.bat loop, the process first checks for and deletes any SMTP lock (.lck) files that exist.
3. Next, the process then checks the \RCMD directory for the following:
    - Any .zip File. If found, jloop calls pkunzip and unzips the file contents into the /RCMD directory. The zip file is then deleted.
    - The file Rcmd01.bat. If present, jloop calls rcmd01.bat. When done, Jloop.bat deletes rcmd01.bat
    - Six specific JNOS configuration files (autoexec.nos, ALIAS, ONEXIT.NOS, FTPUSERS, REWRITE, DOMAIN.TXT). If present, these files are copied into their appropriate location, then deleted from the upload directory.
    - The file Rcmd02.bat. If present, jloop calls rcmd02.bat.
    - The files REBOOT.01 or REBOOT.01. If found, a PC Reboot is initiated.
    - The file STOP.STP. If found, the Jloop.bat file is exited. This requires a manual retstart.
4. Jloop then calls Jstart.bat. Jstart in turn runs the JNOS program.
5. At the Source Node, the Node Admin makes one or more changes to the Remote Node configuration files.

6. Once the file(s) are updated, the Node Admin FTPs to the Remote Node.
7. Using the FTP commands, the updated files are FTP'ed to the Remote Node.
8. When done, the Node Admin exits (Quits) from FTP.
9. At the Source Node JNOS prompt, the Node Admin enters the command that causes the Remote Node to restart.
10. At this point, JNOS exists, and the Jloop.bat file continues. Control loops back to the top of the loop and the sequence picks up again with step 2.
11. Additionally, if JNOS terminates for any reason (including the above), jloop continues and returns to step #2 above.

7.4 Rcmd01.bat, Rcmd02.bat files

```
@echo off
```

<<< FILL IN HERE >>>

7.5 Configuring for Remote Access

The following steps are applied to the **FTP DESTINATION JNOS** Node for remote access.

1. Create the J:\RCMD Directory	The RCMD directory is the upload point for all incoming FTP files. It can also be the directory where files can be retrieved off of the JNOS Node. The directory can either be created using Windows Explorer or from a DOS window using the following command: `C:\> MD c:\JNOS-xxx\RCMD` Once created, verify the directory exists.
2. Setup Remote Services and Password	There are 2 statements that must be in the autoexec.nos file for Remote services to work:

	`# set the password for remote control`
	`start remote`
	`remote -s password`

	1. The start remote command starts this service. 2. The remote –s <password> command defines the password that must be sent with the remote services command to this JNOS node. 3. After these lines are added or updated, restart JNOS.

3. Setup FTP User Logon	To FTP files to the target JNOS node, the person performing the FTP needs to have a user logon and password set up. This information is placed in the FTPUSERS file. For instance:
	`# <username> <password> <root_dir> <permissions>`
	`# Special FTP accounts`
	`# ----------------`
	`cuprcmd carport45 /rcmd 7`
	Note that the root_dir uses the Unix notation for the directory slash.

The following steps are applied to the **FTP SOURCE JNOS** Node for remote access.

1. Create the J:\Out Directory	The Out directory is the source directory for all outgoing FTP files. It can also be the directory where files can be retrieved off of the JNOS Node. The directory can either be created using Windows Explorer. Once created, verify the directory exists.
TO BE COMPLETED	